



**TACOM**  
Lethality, Survivability, Mobility and  
Sustainment for America's Army



**OPMSA  
Overview  
For the**

**Armaments for the  
Army Transformation  
Conference**

**20 June 2001**

**LTC Gil Brown  
PM Small Arms**

**Tank-automotive & Armaments COMmand**  
*Committed to Excellence*

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# OUTLINE

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- **TACOM Organization**
  - DSA Structure
    - Warren Organizational Changes
  - Transformation Support
- **OPMSA Overview**
  - Organizational changes
  - APO Fill
  - PM Scorecard
  - Support for the Transformation
  - Legacy System Improvements
    - Individual Weapons
    - Crew Served Weapons
    - Ammunition
  - Future Programs
    - OICW
    - OCSW

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# TACOM Organization



## VISION

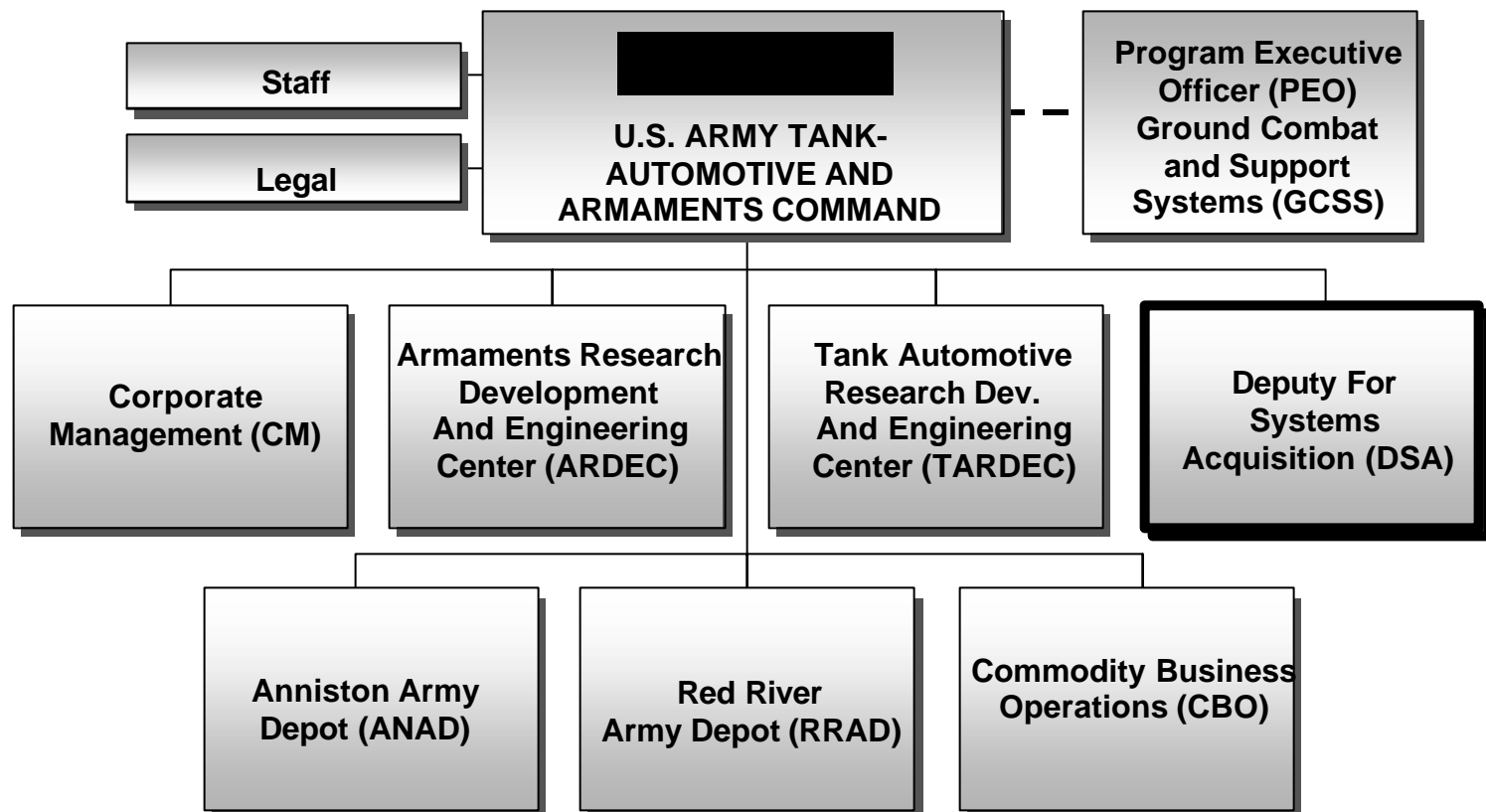
### The U.S. Army Tank-automotive Armaments Command

Provides Ground Combat, Automotive, Marine, and Armaments Technologies, and Systems

- Generates, Provides and Sustains, Mobility, Lethality, and Survivability for Soldiers, Other Services and Our Allies

## MISSION

Providing our Soldiers With Overwhelming Lethality, Mobility and Survivability for Battlefield Dominance.



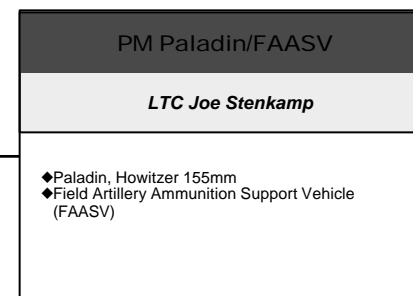
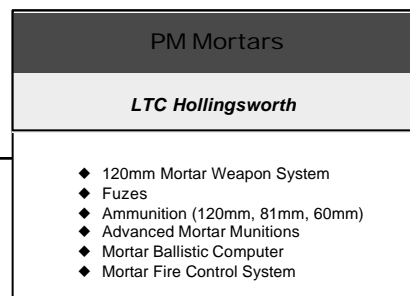
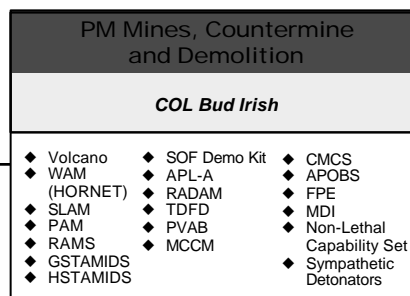
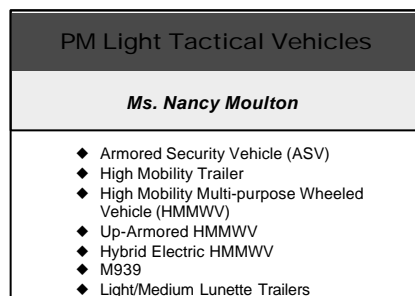
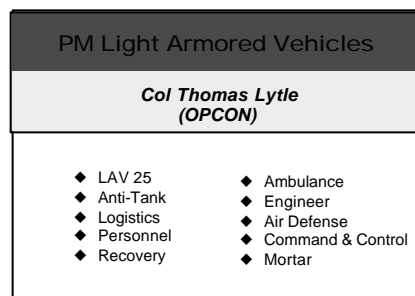
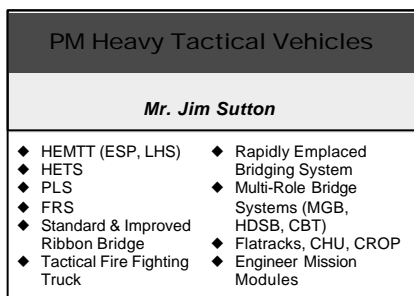
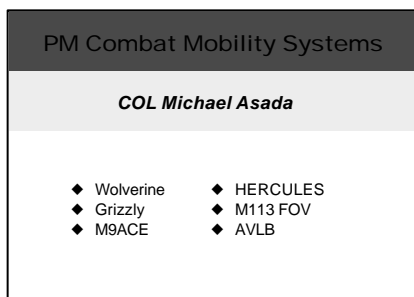


## Vision

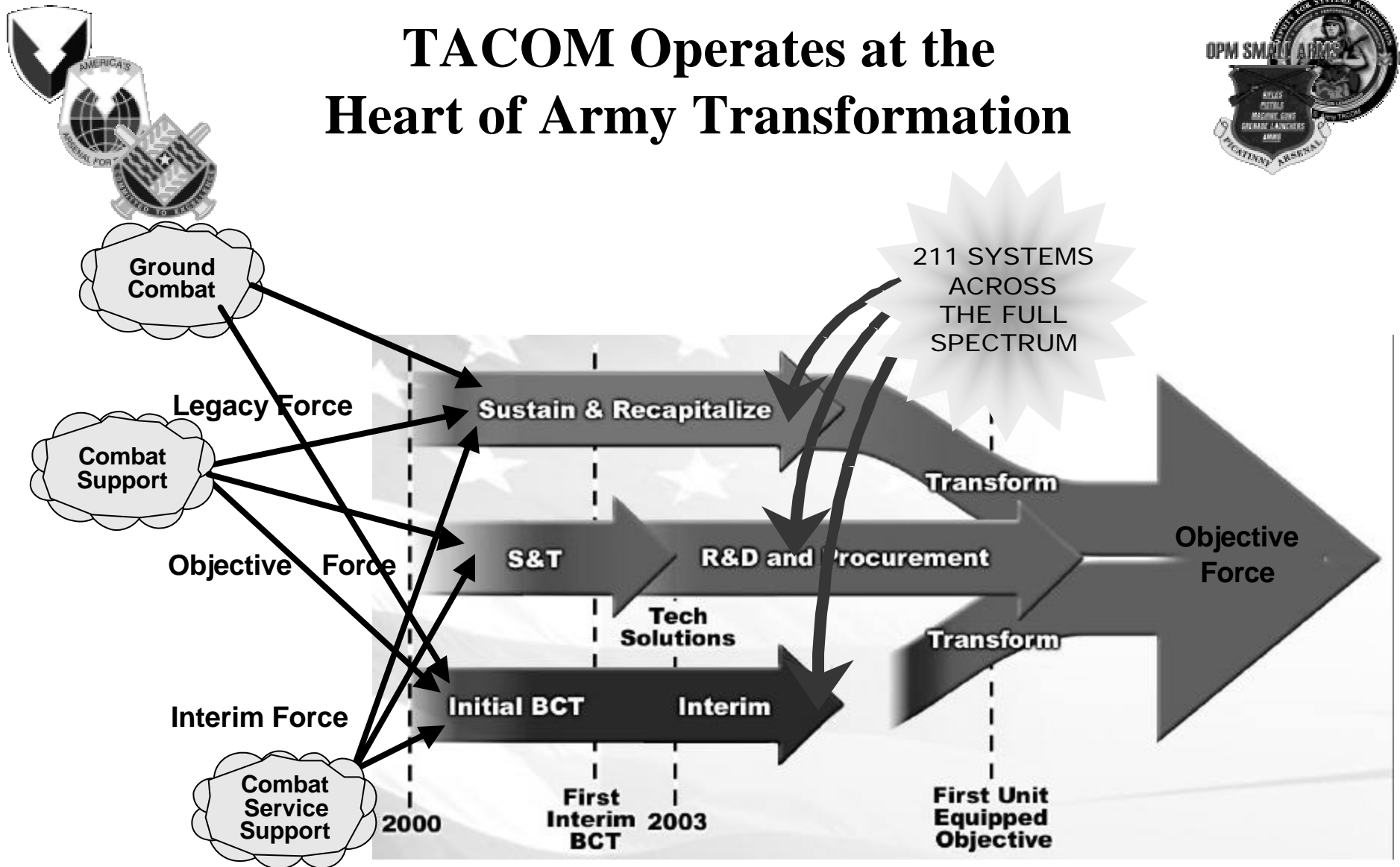
Leading Acquisition  
Continuously Improving  
Warfighter Focused

## Mission

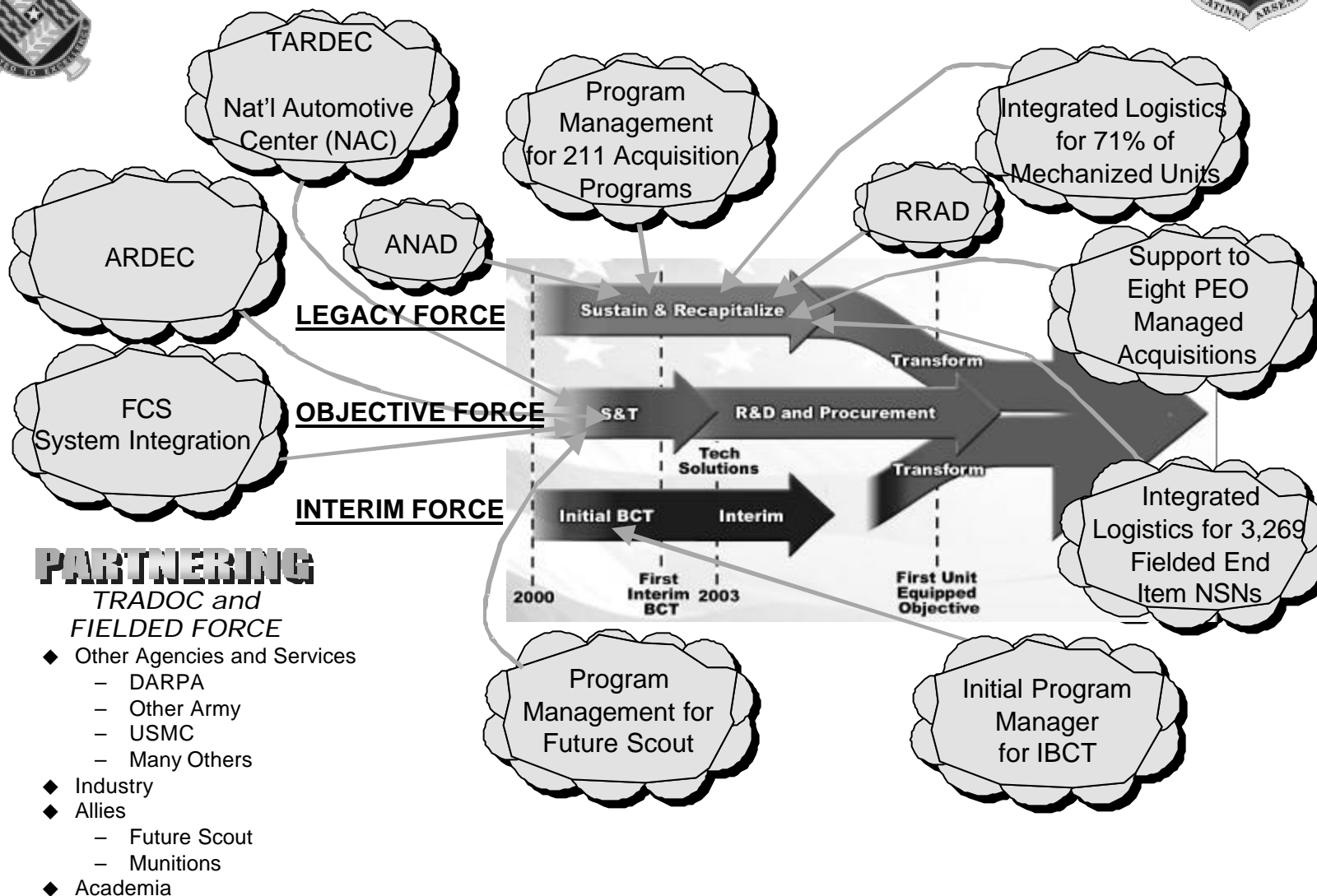
Develop, Acquire, Produce, Field and Sustain  
Safe, Reliable, Effective and Supportable Warfighting  
Systems



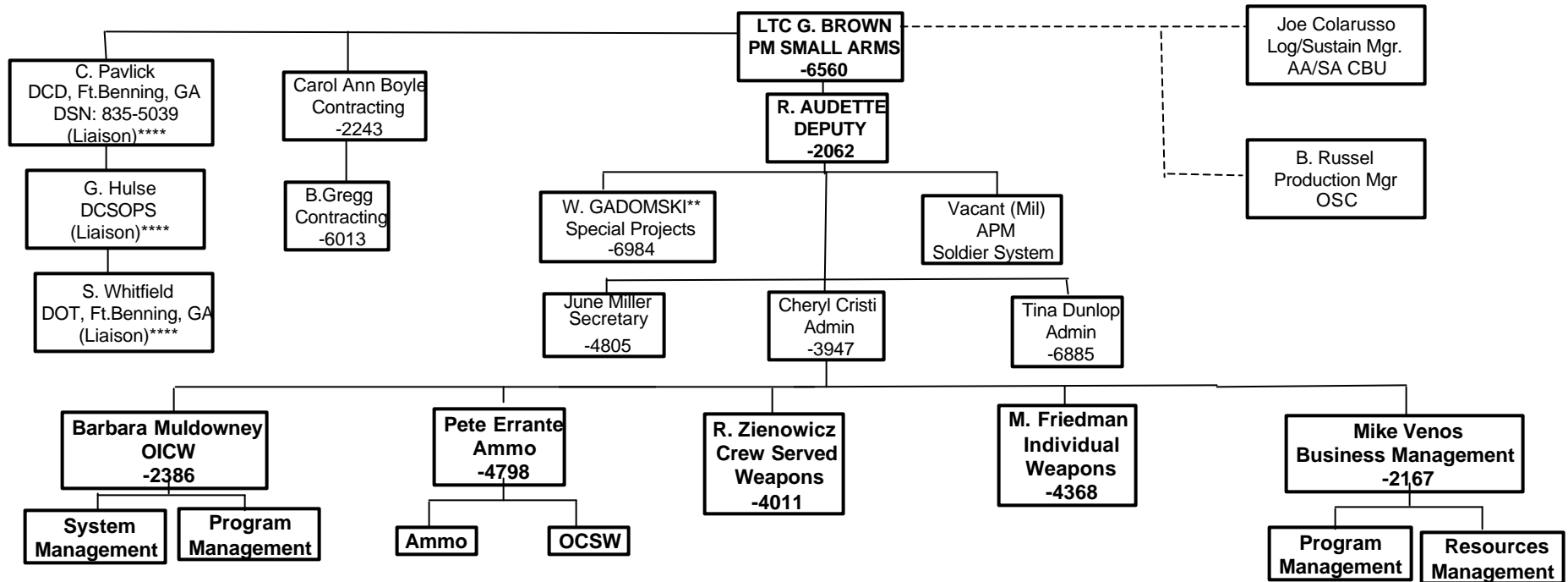
# TACOM Operates at the Heart of Army Transformation



# TACOM Support to Army Transformation



# Office of the Product Manager Small Arms



Core Personnel	22
Matrix Personnel	13
Contractor	8
Matrix Not Co-located	3
Contractor Not Co-located	3

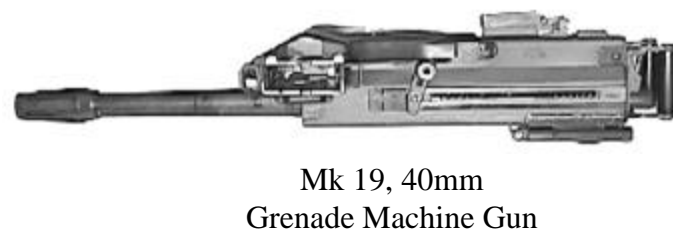


# Army Procurement Objective (APO) Fill



## % APO Fill

FY	98	99	00	01	02	03	04	05	06	07	08	09	10
M4 Carbine	55	59	64	70									
M16A2/A4 Rifle	86	88	90	91	91	92	95	97	97				
M249 SAW	78	80	82	84	87	89							
M240B MMG	44	55	40	50	63	76	91	100					
Mk19-3 GMG	81	70	76	81	86	89							
M2 MG				154									



# Office of the Product Manager Small Arms

## Scorecard

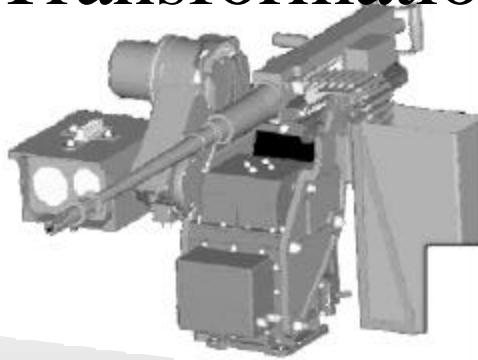
### MILESTONE ACTIONS COMPLETED

TITLE	QUARTER COMPLETED
M145 Machinegun Optics	1Q00 (TC-STD)
XM1012/XM1013, 12 Gauge NL Point & Crowd Control	4Q00 (TC-STD)
Lightweight Ground Mount for MGs	4Q00 (MS I/II)
XM973/XM974, 7.62 Short Range Training Ammo	4Q00 (TC-STD)
XM 1001 40mm Canister	3Q01 (TC-STD)
XM 1029 40mm NL Crowd Dispersal Cartridge	3 Q01 (TC-STD)
XM116 Small Arms Fire Control (SAFCS)	3Q01 (MS B)
5.56mm Short Range Training Ammo (SRTA)	3Q01 (MS B)

### MATERIEL RELEASE ACTIONS COMPLETED

TITLE	DATE
M145 Machinegun Optics	2Q00
M1006 Non Lethal 40MM Round	3Q00
M25 Stabilized Binoculars	4Q00

# Small Arms for the Transformation



## OPM SMALL ARMS



**Crew Served  
Weapons**

**Objective  
Weapons**



**Individual  
Weapons**



# M16/M4/M203 INITIATIVES



CLOSE COMBAT MISSION  
CAPABILITY KIT



IMPROVED BUTTSTOCK FOR M4



MODULAR WEAPON SYSTEM

## M203 RAIL SYSTEM



CLOSE COMBAT OPTICS



*M16A4*



*M4/M4A1*



*M4/M203A1*



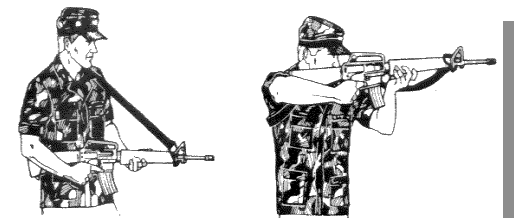
5.56 ARMOR PIERCING



BACK-UP IRON SIGHT



WEAPON FLASHLIGHT  
MOUNT



SLING, CLOSE QUARTERS BATTLE FOR M4

# XM107 SEMI AUTOMATIC LONG RANGE SNIPER RIFLE

## CAPABILITIES OF ITEM

- Versatile, Manportable, Multiple Round, Rapid Fire Rifle
- Primarily Anti-Materiel System w/ Mk211 API Ammo
- Ranges: Anti-Materiel (1000-1200m) / Personnel (600-1000m)

**OBJECTIVE:** To Field COTS Anti-Materiel and Counter-Sniper Semi-Automatic Rifles Based On USMC M82A3.

## BENEFIT:

- Effective Against Light Materiel & Personnel Targets
- Supplements Sniper's Role To Support Combat Operations
  - Discriminately & Precisely Engage High-Value Targets
  - Counter Sniper Capability (MOUT)
- Firepower & Standoff Ranges Improve Sniper Survivability

**CONTRACTOR:** Barrett Firearms MFG, Inc.

**PROPONENT:** US Army Infantry Center  
US Special Operations Command

## POCs:

R. Galeazzi / AMSTA-DSA-SA/ITRi (GC) / DSN: 880-6656

W. Boyle / AMSTA-AR-CCL-A / DSN: 880-7873



# JOINT SERVICE COMBAT SHOTGUN, XM1014

## **CAPABILITIES OF ITEM**

- 12 Ga. Semi-Automatic
- Effective Range of 40 Meters
- Compatible with Standard 2 3/4 "00" and 3 inch ammo
- Will manually cycle current Non-Lethal Munitions
- Telescoping/collapsible Buttstock with Pistol Grip
- Magazine Capacity of 5 rounds (Threshold)
- Reliably Function when Exposed to Adverse Environmental Conditions



JOINT SERVICE COMBAT SHOTGUN, XM1014 - Stock Closed



JOINT SERVICE COMBAT SHOTGUN, XM1014 - Stock Open

**OBJECTIVE:** To adopt the Joint Service Combat Shotgun, XM1014 for use Within the Army

**BENEFIT:** Will Standardize Army Shotguns with Those in Use by the Joint Services

- 12 Ga. Semi-automatic Function
- Mounting Rail for Sighting Accessories
- Will Provide a Higher Volume of Fire than Existing Pump Action Shotguns
- Will Reduce the Existing Logistics Burden of Supporting the Existing Three Types of Pump Actions Shotguns in Use Throughout DOD

**CONTRACTOR:** H&K/Benelli

**PROPONENT:** Joint Service Lead - Marine Corps Systems

Command; US Army - USA Infantry Center

**POC:** T. Vass/AMSTA-DSA-SA/DSN: 880-7901

S.Sudol/AMSTA-AR-CCL-A/DSN: 880-7931

# M249 SAW INITIATIVES



**SHORT BARREL**



**HMMWV MOUNT**



**Alternate  
Mounting Surfaces**



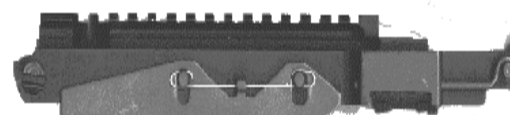
**COLLAPSIBLE BUTTSTOCK**



**M249  
Light Weight  
Tripod**



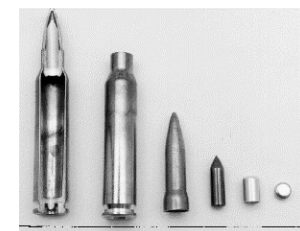
**MACHINEGUN OPTICS**



**FEED TRAY COVER**



**CLOSE COMBAT MISSION  
CAPABILITY KIT**



**5.56 ARMOR PIERCING**

# M240B MACHINEGUN

## INITIATIVES



**Forward Accessory Mounting Surface**



**7.62 ARMOR PIERCING**



**M197 MOUNT**



**Improved Buttstock**



**Improved Buffer**



**Improved BFA**



**M240B Weight Reduction Program**



**M240B Improved Barrel Bag**

**Improved Bipod**

**M240B Combat Ammo Pack**

**M240B Light Weight Tripod**

**MACHINEGUN OPTICS**



**HMMWV MOUNT XM6 Pedestal w M197 Mount**



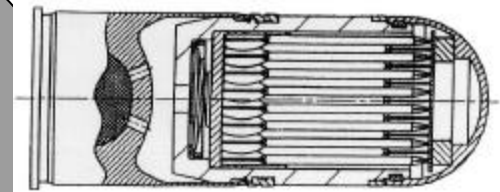
# MK 19 GRENADE MACHINEGUN INITIATIVES

40mm,  
Low Cost  
Training Ammo

MK19,  
Adj Sight Bracket



Sight, Computerized, Small Arms  
Fire Control, XM116



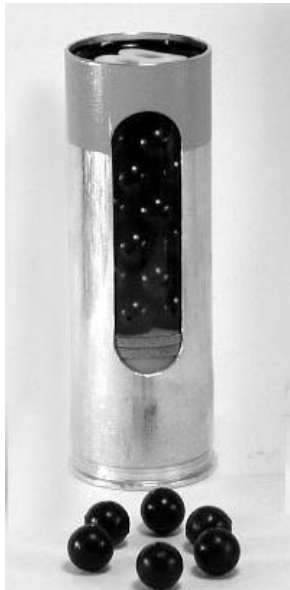
40mm Canister Ctg.

MK19 Upgrade  
Material Change Kit

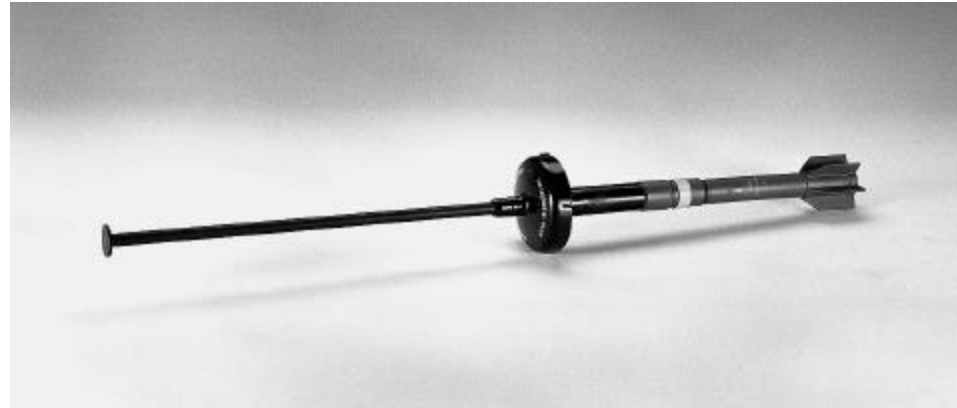


REMOTE MG  
PLATFORM/CROWS

# AMMUNITION PROGRAMS



40mm Crowd Control Mmunition  
XM1029



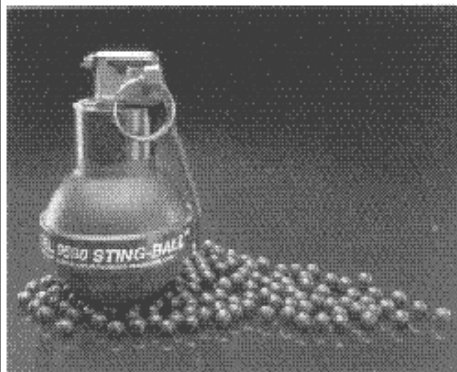
Rifle Launched Entry Munition



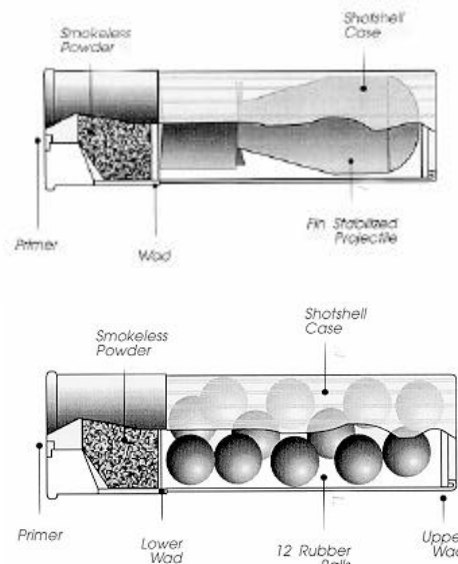
Stun Grenade



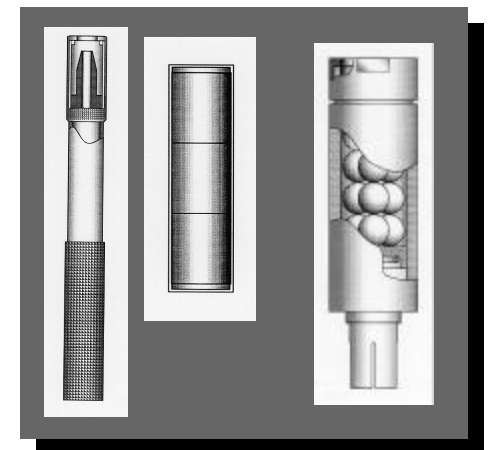
NL 40mm Round,  
M1006



HAND THROWN  
STINGBALL GRENADE



12 Ga NL Point & Crowd  
XM1012/XM1013

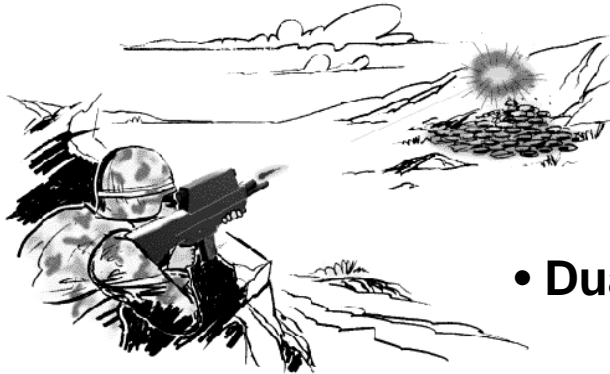


Rifle Launched NL Munition  
XM95

# Objective Individual Combat Weapon

## User's Vision

- **Soldier's Individual Combat Weapon – well into 21st century!**
  - **Bursting Munition Concept**



- Provides revolutionary capability
- Offsets aim error associated with iron sights
- Provides more efficient lethal mechanism

- **Dual Munition System**
  - 20mm High Explosive
  - 5.56mm Bullets



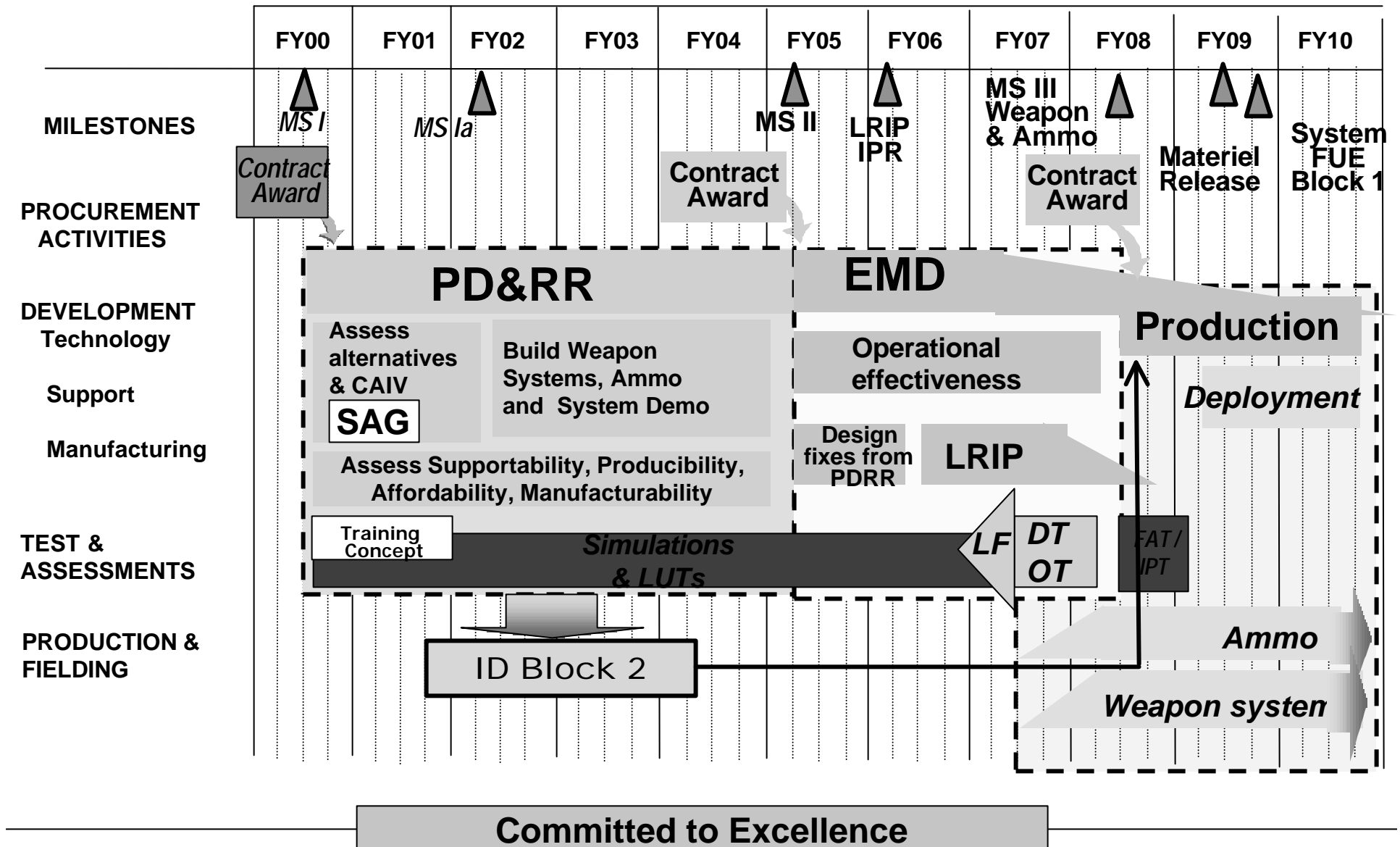
- **Increases range/lethality**



- **Target Acquisition/Fire Control System**
  - Laser Range Finder
  - Ballistic Computer
  - Fuze Setter
  - Electronic Aim Point

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# OICW Program Schedule



# **OICW PD&RR Acquisition Strategy**

- **Acquisition Strategy Approved 29 March 2000**
- **Cost Plus Award Fee – Utilized Alpha Contracting**
- **Single Prime Contractor**
  - **Develops Synthetic Environment to govern simulation & modeling**
    - **Baseline Infrastructure based on IDE - Windchill**
  - **Maximizes technology development through use of simulation**
  - **Leverages simulator to build training solution (unaffordable without it)**
- **Incorporates an In Process Review at 18 months after contract award**
  - **Technology/Requirements Trades**
  - **TRADOC study addressing requirements**
  - **Hardware build and test of PDRR configuration**
  - **Near final design ready for EMD**
- **Contract is for PD&RR only**
- **EMD will include production options**

# Compliance with ORD

## OICW Exit Criteria

**MS 1a**

**PDRR**

**EMD/ORD**



P(i) Exposed stationary

.45@350-400m

.45@450-500m

.50@450-500m



P(i) Defilade

.30@300-350m

.30@450-500m

.35@450-500m

Fuze

redesign/safety tests  
and demo, FSB review

confirm  
no change

AFSB  
certification



Weight

$\leq 15$  lbs

$\leq 15$  lbs

$\leq 14$  lbs(T)/  
10 lbs (O)



Firing Positions:

-

Demonstrate

Demonstrate



Ruggedness/Reliability:

-

Initial Data Set

Demonstrate

- Operational Requirement Document Approved 11 February 2000
- Currently Funded to MS II

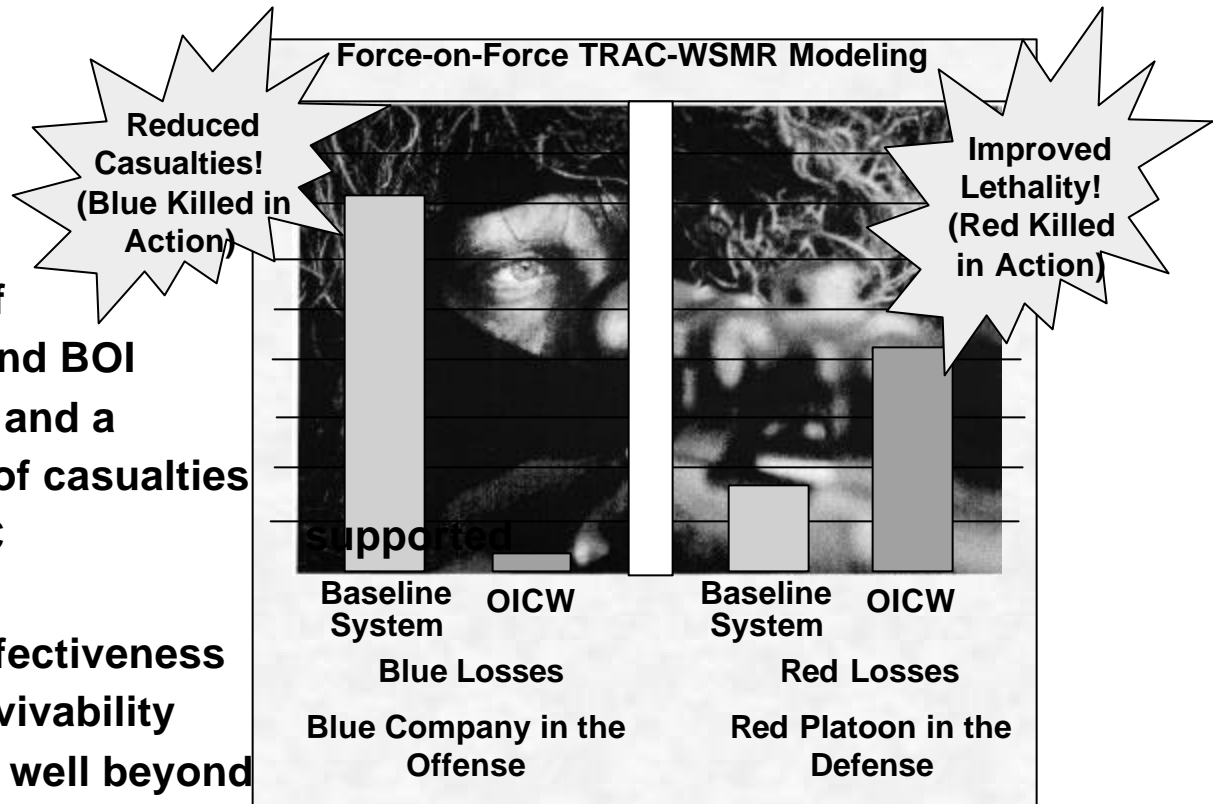
# Key Challenges

**Weight**

**Training**

# Constructive Simulation: Modeling

- Force-on-Force
  - Conducted by TRAC-WSMR using CASTFOREM
- Initial parametric assessment of P(I), maximum effective range, and BOI showed increased effectiveness and a significant reduction in number of casualties
- OICW AoA conducted by USAIC by TRAC found:
  - OICW improves Blue force effectiveness through both lethality and survivability
  - Extends incapacitation range well beyond legacy individual combat weapon
  - Increases OPTEMPO – virtually eliminating firefights to destroy a threat even in protected positions
  - BOI of 4 per squad performs statistically the same as BOI with more OICWs providing the lethality and survivability required to win and fight the next fight



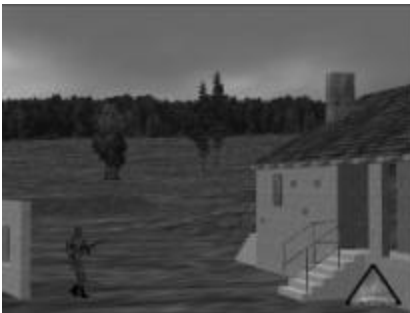
(OICW AoA Jan 2000)

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# Virtual Simulation

- **Systems Under Consideration**
  - **Engagement Skills Trainer**
  - **Small Arms Simulator**
    - **Computer Controlled Man-in-the-Loop Simulator**
    - **Validated with M16 & M203 Performance Data**
    - **Replicates the function and performance of the OICW**
    - **Used as a design tool**



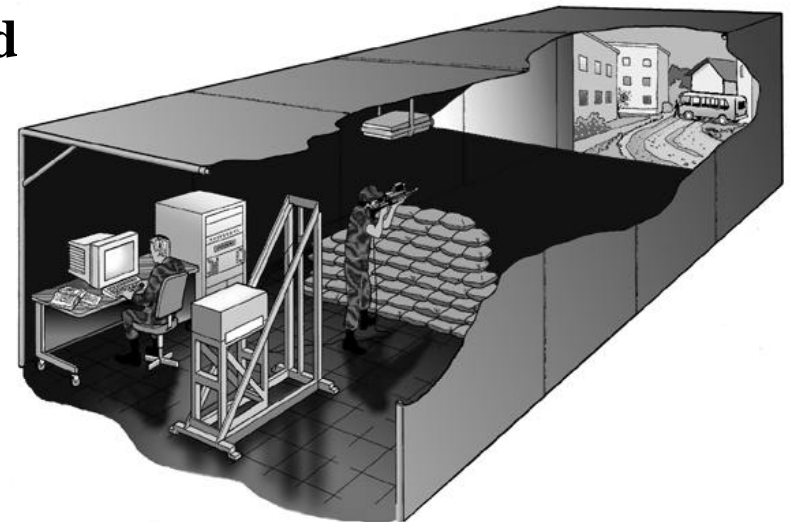
- **Either Can be Utilized as Primary Training Device**



*Computer Generated Graphics & Imagery*



*Computer Controlled*



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# Live Fire & Simulation

## Live Fire

- Pure Marksmanship versus stationary and moving exposed targets
- Trains Soldier to Achieve P(I)

## Simulation

- Trains Marksmanship, Squad Tactical Gunnery, Shoot-- Don't Shoot
- Trains engagement of troop targets gone to ground, in fox holes, and trench lines
- Trains Urban Operations (REDFOR troops around buildings, street corners, snipers) provide stand-off

# Downselect Process Status

- “Three” Down-Selected Architectures



***HE Only w/  
Attachable  
KE  
OR***



***Integrated System  
w/ Separable  
TA/FCS***



***Fully Integrated  
System***



***HE Only  
System***

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# Down Select Criteria

Operational Capability

- Detect
  - Recognize
  - Identify
  - Engage
  - Combat objectives
- } Day/night

TA/FCS

- FOV
- Weight
- Sensor capability

Ammunition

- QE
- Ballistics
- Weight
- Impulse
- P(I)

Conceptual Design



Conceptual Model — Lightweight and Lethal

**CAIV**

Weapon

System

- Impulse
- Weight
- Ergonomics
- Error budget management
- P(I)
- Ergonomics
- Weight
- Supportability
- Training
- Cost – UPC/LCC
- Effectiveness

ATD Technology Demonstrator



OICW Proof of Principle Testing 1999

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# OICW

## Summary

- OICW Provides Leap Ahead Lethality Capability
- User and PM Are Working Technology Challenges to Meet Exit Criteria

***Soldier's Individual Combat Weapon – well into 21st century!***



Conceptual Model — Lightweight and Lethal

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# **OBJECTIVE CREW SERVED WEAPON (OCSW)**

- The future crew served weapon lethality component for Land Warrior
- Incorporates the latest advancements in electronics, materials, and small arms
- Employs revolutionary 25mm high explosive, air bursting and armor piercing munitions as its primary defeat mechanism against defilade individuals, personnel protected with body armor, and light armored vehicles.
- Provides a unique capability in MOUT and urban warfare.
  - Capable of defeating individual targets in defilade without consuming significant amounts of ammunition or causing collateral damage.
  - Cost savings associated with less ammunition
  - Reduces the soldiers load
  - Increases survivability.
- Currently in the Advanced Technology Demonstration phase
  - Milestone I/II decision scheduled in late FY02
  - First Unit Equipped is scheduled for FY11.



# OPM Small Arms

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Questions?

**[http://w4.pica.army.mil/opmsa/  
gbrown@pica.army.mil](http://w4.pica.army.mil/opmsa/gbrown@pica.army.mil)**